

CLAIMS

5 WHAT IS CLAIMED IS:

1. A lube oil composition comprising
 - (a) poly(trimethylene-ethylene ether) glycol base stock and
 - (b) at least one lube oil additive.
- 10 2. The lube oil composition of claim 1, wherein the lube oil additive comprises at least one of ashless dispersant, metal detergent, viscosity modifier, anti-wear agent, antioxidant, friction modifier, pour point depressant, anti-foaming agent, corrosion inhibitor, demulsifier, rust inhibitor and mixtures thereof.
3. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene
15 ether) glycol base stock has a number average molecular weight of 500 to 5000.
4. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene ether) glycol base stock has a number average molecular weight of 700 to 4000.
5. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene ether) glycol base stock has a number average molecular weight of 1000 to 3000.
- 20 6. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene ether) glycol base stock has a molecular weight distribution of 1.2 to 2.2.
7. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene ether) glycol base stock has a molecular weight distribution of 1.4 to 2.0.
8. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene
25 ether) glycol base stock has a molecular weight distribution of 1.4 to 1.8.
9. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene ether) glycol base stock has a kinematic viscosity at 40 °C of about 50 to about 2000 centistokes.
10. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene
30 ether) glycol base stock has a kinematic viscosity at 40 °C of about 100 to about 1500 centistokes.

11. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene ether) glycol base stock has a kinematic viscosity at 40 °C of about 150 to about 1000 centistokes.
12. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene ether) glycol base stock has a viscosity index of 150 to 350.
13. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene ether) glycol base stock has a viscosity index of 175 to 325.
14. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene ether) glycol base stock has a viscosity index of 200 to 300.
15. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene ether) glycol base stock has a pour point of – 75 to 0 °C.
16. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene ether) glycol base stock has a pour point of – 60 to - 10°C.
17. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene ether) glycol base stock has a pour point of - 50 to – 20 °C.
18. The lube oil composition of claim 1, wherein the poly(trimethylene-ethylene ether) glycol base stock is water-insoluble.
19. The lube oil composition of claim 1, further comprising additional base stock.
20. The lube oil composition of claim 19, wherein the additional base stock comprises at least one of hydrocarbonaceous base stock, synthetic base stock and mixtures thereof.
21. The lube oil composition of claim 19, wherein the additional base stock comprises synthetic base stock.
22. A lube oil composition comprising:
 - (a) polyalkylene glycol base stock produced from the reaction of 1,3-propanediol and 1,2 ethanediol, and
 - (b) at least one lube oil additive.
23. The lube oil composition of claim 22, wherein the polyalkylene glycol base stock is produced from the polycondensation of 1,3-propanediol and 1,2 ethanediol.

24. The lube oil composition of claim 22, wherein at least one of the 1,3-propanediol and 1,2 ethanediol is derived from a renewable source.

25. The lube oil composition of claim 22, wherein the 1,3-propanediol is derived from a renewable source.

5 26. The lube oil composition of claim 22, wherein the lube oil additive comprises at least one of ashless dispersant, metal detergent, viscosity modifier, anti-wear agent, antioxidant, friction modifier, pour point depressant, anti-foaming agent, corrosion inhibitor, demulsifier, rust inhibitor and mixtures thereof.

10 27. The lube oil composition of claim 22, wherein the poly(trimethylene-ethylene ether) glycol base stock is water-insoluble.

28. The lube oil composition of claim 22, further comprising additional base stock.

15 29. The lube oil composition of claim 23, wherein the additional base stock comprises at least one of hydrocarbonaceous base stock, synthetic base stock and mixtures thereof.

30. The lube oil composition of claim 29, wherein the additional base stock comprises synthetic base stock.

20 31. The lube oil composition of claim 1 used as hydraulic fluid, brake fluid, heat transfer fluid, compressor lubricant, textile and calender lubricant, metalworking fluid, refrigeration lubricant, two-cycle engine lubricant or crankcase lubricant.

32. The lube oil composition of claim 1 used as refrigeration lubricant.

25 33. The lube oil composition of claim 32, wherein the additive is at least one of extreme pressure and antiwear additive, oxidation and thermal stability improver, corrosion inhibitor, viscosity index improver, pour point depressant, floc point depressant, detergent, anti-foaming agent, viscosity adjuster and mixtures thereof.

34. The lube oil composition of claim 1 mixed with at least one tetrafluoroethane.

30 35. The lube oil composition of claim 33 mixed with at least one tetrafluoroethane.

36. The lube oil composition of claim 1, which is free of pour point depressant additive.

37. The lube oil composition of claim 22, which is free of pour point depressant additive.

5 38. The lube oil composition of claim 1, which is free of viscosity index improver additive.

39. The lube oil composition of claim 22, which is free of viscosity index improver additive.